B2

21. (Amended) An electron emitter comprising:

a p region;

a dielectric layer formed directly above said p region;

a metallic layer formed directly above said dielectric layer; and

at least one voltage biasing source electrically connected to said p region and said metallic layer such that electrons pass through said metallic layer.

B3

30. (Amended) The electron emitter according to claim 21, wherein a thickness of said dielectric layer is such that a dielectric breakdown field F_b of said dielectric layer substantially meets the condition $F_b \geq 1.5 * 10^7$ V/cm.

31. (Amended) The electron emitter according to claim 21, wherein a thickness of said dielectric layer is such that a dielectric breakdown field F_b of said dielectric layer substantially meets the condition $F_b \geq 1.5 * 10^7$ V/cm.

Cancel claims 32 and 33.

B4

34. (New) An electron emitter comprising:

a p region wherein an acceptor hole concentration in the p region ranges substantially between $10^{16}cm^{-3}$ and $10^{18}cm^{-3}$;

a dielectric region formed directly above said p region wherein a thickness of said dielectric region ranges substantially between 1.5 nanometers and 2.0 nanometers and

wherein a dielectric breakdown field F_b of said dielectric region substantially meets the condition $F_b \geq 1.5 * 10^7$ V/cm wherein said dielectric region is formed from materials including at least one of SiO_2, Al_2O_3 and alloys thereof;

a metallic layer formed directly above said dielectric region wherein a thickness of said metallic layer is less than a range of between 2.0 nanometers and 5.0 nanometers wherein said metallic layer is formed from materials including at least one of Au, Ag, Al, Gd, W, Pt, Ir, Pd and alloys thereof;

by end

a substrate below said p region; and

at least one voltage source electrically connected between said p region and said metallic layer such that electrons pass through said metallic layer.

35. (New) The electron emitter according to claim 1, further comprising

an n region formed above said substrate such that said p region is formed above said n region wherein a donor concentration of said of said n region is greater than the acceptor hole concentration; and

at least one voltage source electrically connected between said n region and said metallic layer.